The specification states, that these "improvements in machinery for printing, consist in variations, additions, and modifications of an apparatus for printing, described in the specification of a patent, &c. granted 21st of March, 1822." The improvements are embraced under the following heads: 1st, a method of adjusting and fixing the form of types upon the table, and of removing the same, and replacing other forms of types, with great expedition; 2dly, adapting a stationary surface, upon which, the paper intended to be printed, is laid and adjusted, ready to be drawn off, on to the frisket; 3dly, a mode of obtaining register with perfect accuracy; 4thly, the means, and apparatus, employed for confining the sheet of paper upon the frisket; 5thly, an interrupted gear motion, or mechanical contrivance, to effect a reciprocating action, by which certain parts of the machinery are alternately put in motion, or set at rest, while the other parts of the machinery, are continuing their progress; 6thly, the mode of taking off the sheet of paper, after it has been printed, and delivering the sheets, in succession, on to a heap, with perfect regularity; and 7thly, the mode of regulating, at pleasure, the quantity of ink communicated to the distributing rollers.

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To JOSEPH ASPDIN, *of Leeds, in the County of York, Bricklayer, for his new invented improvement in the mode of producing an artificial Stone.*

This cement or artificial stone, is proposed for the covering of buildings as stucco, and is suited either for dry situations or for water-works. The patentee designates the material PORTLAND CEMENT, from its resemblance to Portland stone; its component parts are as follow: a given quantity of lime-stone, of the kind usually employed for mending roads, is to be pulverized by beating or grinding, or it may be taken from the road in a pulverized state, or in the state of puddle. This, when dried, is to be calcined in a furnace in the usual way. A similar quantity of argillaceous earth or clay is then to be mixed in water with the calcined lime-stone, and the whole perfectly incorporated by manual labour, or by machinery, into a plastic state. This mixture is then to be placed in shallow vessels for the purpose of evaporation, and is to be submitted to the action of the air, the sun, or the heat of fire, or steam conducted by pipes, or flues under the pans or evaporating vessels.

This composition, when in a dry state, is to be broken into lumps of suitable sizes, and is then to be calcined again, in a furnace similar to a lime-kiln, till the carbonic acid has been entirely expelled. The mixture so prepared, is then to be pulverized by grinding or beating, and when reduced to a fine powder, is in a fit state for use; and, with the addition of so much water as will be sufficient to bring it into the consistency of mortar, will, when applied to its purpose, make a compact and durable artificial stone, equal to the Portland stone itself.

To James Russel, *of Wednesbury, in the County of Stafford, Gas Tube Manufacturer, for his invention of an improvement in the manufacture of Tubes for Gas and other purposes.*

These improvements, appertain to the peculiar mode of forming pipes and tubes of malleable iron, as practised by the patentee. He states, that he provides iron plates, previously rolled to a suitable thickness, and cut into strips of such length, as may be found desirable to constitute one piece of pipe or tube; the breadth of the strip, corresponding to the circumference of the tube intended to be formed.

The sides of the slips are then bent up by swages, or otherwise in the usual way, so as to bring the two edges as close together as possible.

This bent iron, or imperfect tube, is then introduced into a blast furnace, and when brought nearly into a state of fusion, is removed, and placed under a tilt hammer, for the purpose of welding the joint. The anvil, or the bolster fixed into the anvil upon which the tube is to be placed, has a semi-cylindrical groove formed in it, and the under side of the hammer has a corresponding groove. The imperfect tube is now slowly passed along under the tilt hammer, and by a succession of blows, the edges of the plate-iron become welded from end to end, and the tube rudely formed. The action of the tilt hammer is effected as usual; it vibrates upon pivots, and by the rotation of a wheel with projecting arms or cogs, which strike successively upon the end of the hammer, it is raised, and falling by its own gravity, produces the repetition of blows.

When the edges of the iron have been thus completely welded from end to end, the tube is to be again heated in a furnace as before, and then passed through a pair of grooved rollers. These rollers may have several circular grooves, suited to tubes of different diameters. The end of the tube, immediately as it comes out from between the rollers, is met by a conical or egg-shaped core, placed at the extremity of a stationary, horizontal rod, which egg-shaped core enters the open end of the tube, as it advances from between the rollers, and by sliding upon this core, the internal part, or bore of the tube, is formed to the exact diameter of the core, and rendered perfectly smooth; its external form, being determined by the grooved rollers.

The advantages which are proposed by this mode of manufacturing tubes and pipes, of wrought iron, for conveying gas, and other purposes, are, that the internal and external surfaces of the tubes will be perfectly cylindrical, and parallel to each other; and that the irregularities, occasionally arising from scales, and other obstructions, will be altogether avoided. The claim of invention, therefore, is not to be